

Date: Tuesday, 9/12/2006 1:11:50 PM
 User: Kim Johnston

Process Sheet

43

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : 350/355 AS X-TUBE AFT
Job Number : 28463	
Estimate Number : 12486	
P.O. Number : N/A	Part Number : D350748201
This Issue : 9/12/2006 S.O. No. : N/A	Drawing Number : IIN-D350-748 PG5
Prsht Rev. : NC	Project Number : N/A
First Issue : N/A Type : LANDING GEAR	Drawing Revision : A UNDER REVIEW
Previous Run : 28462	Material : N/A
Written By : _____	Due Date : 10/25/2006 Qty: 1 Um: Each
Checked & Approved By : _____	
Comment : Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update qty of MS21042L5 06-09-12 KJ	

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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Comment: Photocopy bluefile & type labels per PPPD350-748-201	CHG001
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KS 06.10.11

2.0	28463A	X-TUBE AS 350/355 HI AFT
-----	--------	--------------------------



Comment: Sub-Component X-TUBE AS 350/355 HI AFT
D350-748-241 B 28463A

3.0	PACKAGING 1	PACKAGING RESOURCE #1
-----	-------------	-----------------------



Comment: PACKAGING RESOURCE #1
Pick Packing Kit

4.0	D35001	350 SADDLE
-----	--------	------------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
350 SADDLE
Batch: B28794 ✓

5.0	D3501	BUSHING
-----	-------	---------



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
BUSHING
Batch: B28127 ✓

LB 06/12/21 ✓

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:11:50 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 28463

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M102602 ✓

7.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M101538 ✓

8.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M14781 ✓

9.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M102339 ✓

10.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M100564 ✓

11.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M9185 ✓

12.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M102171 ✓

RB 06/12/21 ✓

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☐ No ☒ DQA: ☒ Date: 07/01/02
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:11:50 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT

Job Number: 28463

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

PU 6/12/22 (1)

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-201

Location:

PPP Rev:

Drift

LB 06/12/29 (1)

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/01/02 (1)

Job Completion



U 06.12.29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

3.10 Apply a continuous bead of Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class B2 sealant in the following locations as per Figure 6:

- A) Along saddle/crosstube interface.
- B) Between the saddle flanges.
- C) Along saddle/skidtube interface.

4.0 WEIGHT AND BALANCE

The following weight and balance information is for Dart crosstube installations only. This data should be similar to the existing installation. Differences from the parts removed are the responsibility of the installer.

DART CROSSTUBE	FWD/AFT	WEIGHT	STA	MOMENT
D350-748-101	Fwd	35.2 lb (16.0 kg)	106.3 in (2.70 m)	3742 lb-in (43.2 kg-m)
D350-748-201	Aft	34.7 lb (15.7 kg)	162.4 in (4.12 m)	5635 lb-in (64.7 kg-m)

5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

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SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO 28463

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Revision: A

Date: 06.05.08

Date: Tuesday, 9/12/2006 1:12:08 PM
 User: Kim Johnston

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	X-TUBE AS 350/355 HI AFT
Job Number :	28463A		
Estimate Number :	12483		
P.O. Number :	N/A	Part Number :	D350748241
This Issue :	9/12/2006	S.O. No. :	N/A
Prsht Rev. :	NC	Drawing Number :	D350-748-241
First Issue :	N/A	Project Number :	N/A
Previous Run :	28462A	Drawing Revision :	C UNDER REVIEW
		Material :	N/A
Written By :		Due Date :	10/25/2006
Checked & Approved By :		Qty:	1 Um: Each
Comment :	Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update cadplate process 06-09-12 KJ		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
-----	----	------------------



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D350-748-241 CHG001

N/A

2.0	D6018125	Crosstube Material
-----	----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Crosstube Material

D6018-125

2.299" OD X 2.000" ID

Batch: 27472

BG

06-09-14

1

3.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
-----	------------	----------------------------



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs on both ends as per Folio FA647

2-Turn first side as per Folio FA647

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

BG 06-09-15

1

4.0	QC1	INSPECT ALL DIM TO DIM SHEET
-----	-----	------------------------------



Comment: INSPECT ALL DIM TO DIM SHEET

BG 06-09-15

1

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:12:08 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28463A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA647

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

3-Scribe part # as per Dwg D350-748-241

BC 06.09.15

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

BC 06.09.15

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

3.6 06/09/15

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Remove all Machining Marks

DP 6-9-25

9.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 2129

cdde/09/26 D

Heat Treat to min 180 KSI As per Dwg D350-748-241

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

06/10/12

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
06.12.20	16	MAGNETIC PARTICLE INSPECT PER DATA QSI 038 4.2 Cadmium PLATE PER AMS-QQ-P-416B CLASS I TYPE II REF D350-74B-241 REV D				CP 06.12.20 Pw QSI 042	06.12.20

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:12:08 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28463A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC6

DIMENSIONAL CHECK



Joe 10-19 ①



Comment: DIMENSIONAL CHECK

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Oil inside of tube with LPS-3.

A/R

LPS-3

Batch:

M101915 DP 6-11-14

13.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT

DP 6-10-30

14.0

QC6

DIMENSIONAL CHECK



Joe 11-13



Comment: DIMENSIONAL CHECK

15.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Remove all marks from tube within limits of D350-748-241

Pm 06-11-14

2-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs,

Set-up drill table as per QSI 010

3-Deburr

4-Engrave Part # and Batch # as per Dwg D350-748-241

DP 6-11-14

POSITIVE
RECALL

16.0

OUTSIDE SERVICE

OUTSIDE SERVICES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: *2501*

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per QQ-P-416F, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possibe Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

C20611115 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:12:09 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28463A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

19.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

ML 06 12 20

①

2-Paint Outside of Tube as per Dart QSI 005 4.2

ML 06 12 20

①

20.0

QC14

Inspect Spray Paint



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

21.0

D35021

SUPPORT



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

SUPPORT

Batch: ~~62784~~ B28089

BT 06-12-21

22.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total: 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: ~~BT 28258~~

BT 06-12-21

23.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Insert

Batch: M19393

BT 06-12-21

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 9/12/2006 1:12:09 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28463A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Washer

Batch: 100743

RT 06-12-21

25.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: M102440

RT 06-12-21

26.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Screw

Batch: B18836

RT 06-12-21

27.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.

3-Install supports Using D18876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

RT 06-12-21

28.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

12/06/12/22 ①

29.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

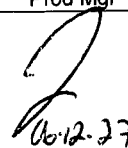

Location: _____


PPP Rev: _____

K/A

PTO

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
06/12/22	28.1	Use Lps 3 inside of crosstube <u>M 101915</u>				 06.12.22	 06/12/22

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA:  Date: 07/01/22
QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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User: Kim Johnston

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT

Job Number: 28463A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

QC21

FINAL INSPECTION/W/O RELEASE



①
07/01/02

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



POSITIVE RECALL

EFFECTIVE 06.09.13 AUTH CP

RELEASED CP DATE 06.12.20

4 06.12.20

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN <i>QD</i>	DRAWN BY <i>QD</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>#</i>	APPROVED <i>#</i>	DRAWING NO. D350-748-241	REV. C SHEET 1 OF 3
DATE 06.08.14		TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	

UNDER REVIEW

QD 06.08.14

CAD PARTIAL PROCESSING
SHEET 1 OF 3

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: CADMIUM PLATE PER QQ-P-416F, CLASS 1, TYPE II
MAGNETIC PARTICLE INSPECT PER ASTM E1444 AFTER CADMIUM PLATING
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

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WORK ORDER
NO 28463A
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06.08.15 *#*

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UNDER REVIEW

06-08-15

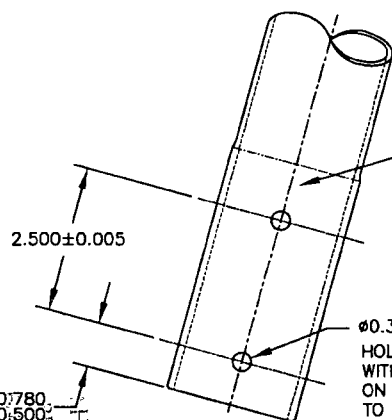
NO. 284634

WORK ORDER

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SUBJECT TO AMENDMENT
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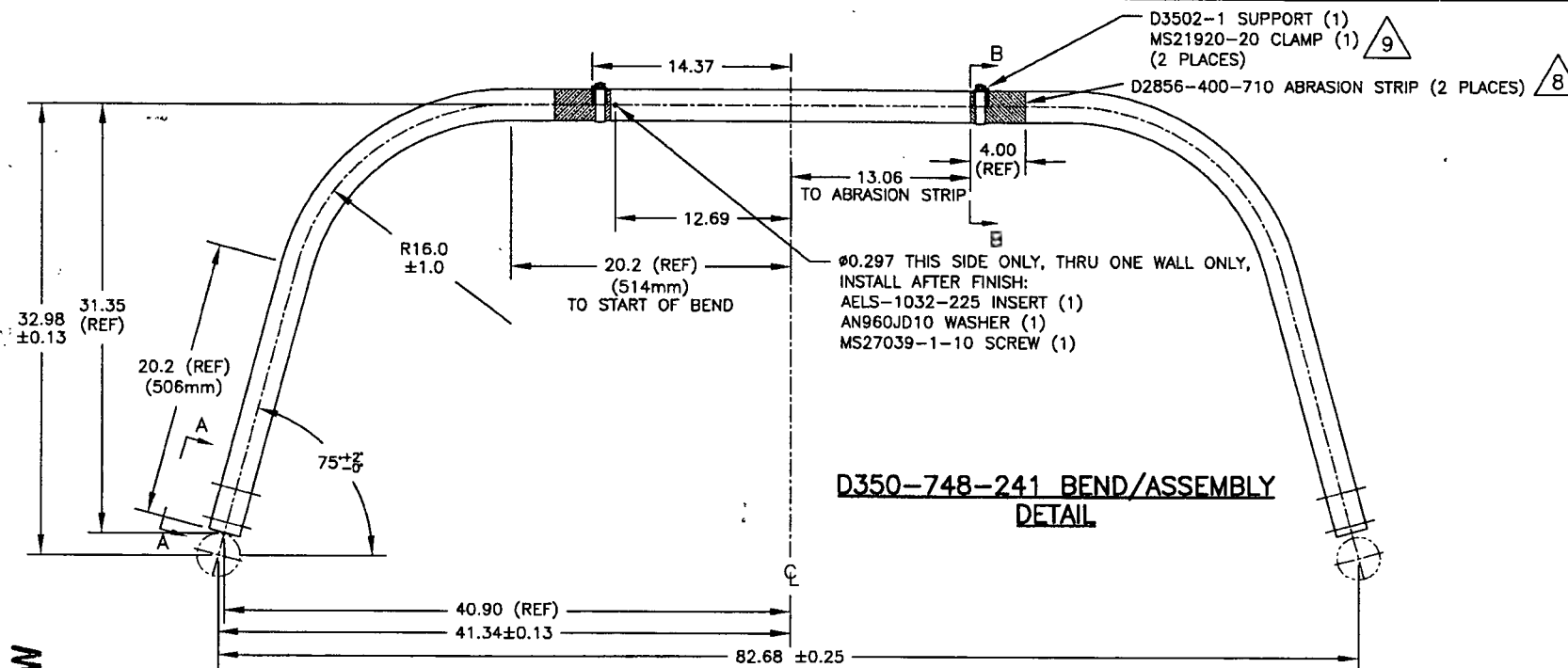
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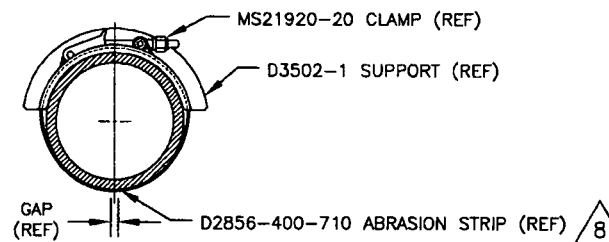
VIEW A-A
SCALE 1:2

Ø0.323^{+0.005}_{-0.005} (THRU, TYP)
HOLE TO BE ALIGNED
WITHIN ±0.001 OF HOLE
ON OTHER SIDE OF CUFF,
TO BE DRILLED AFTER BENDING



D350-748-241 BEND/ASSEMBLY
DETAIL

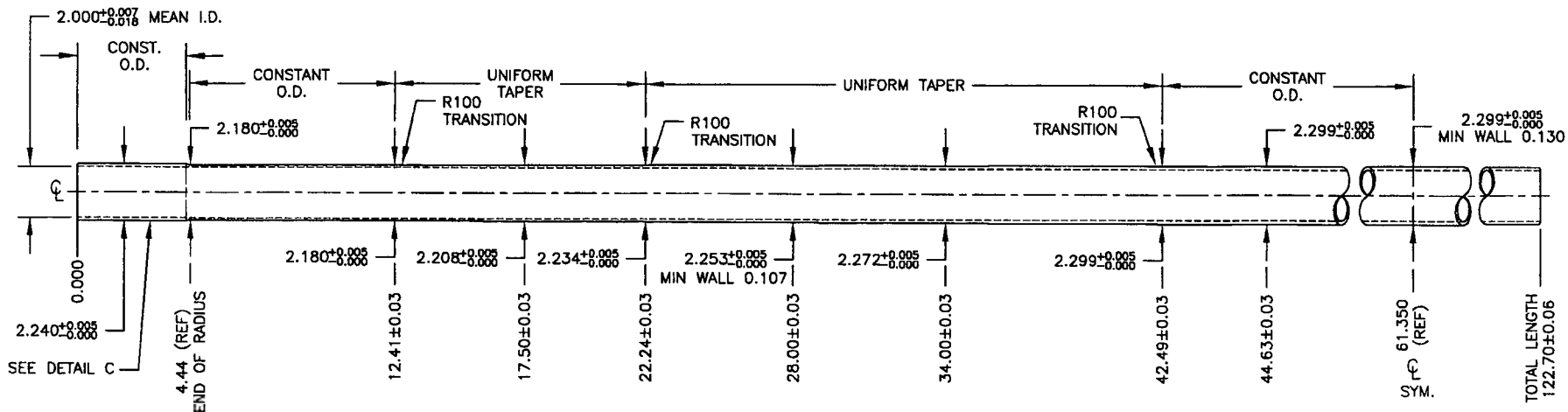
SECTION B-B
SCALE 1:2



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06-08-15

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		DATE	06.08.14	DRAWING NO.		D350-748-241	SHEET 2 OF 3
				TITLE		CROSSTUBE (AS 350/355 HI AFT)	SCALE 1:8

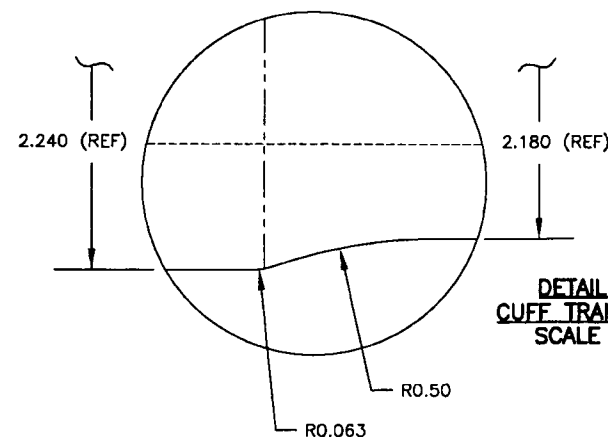
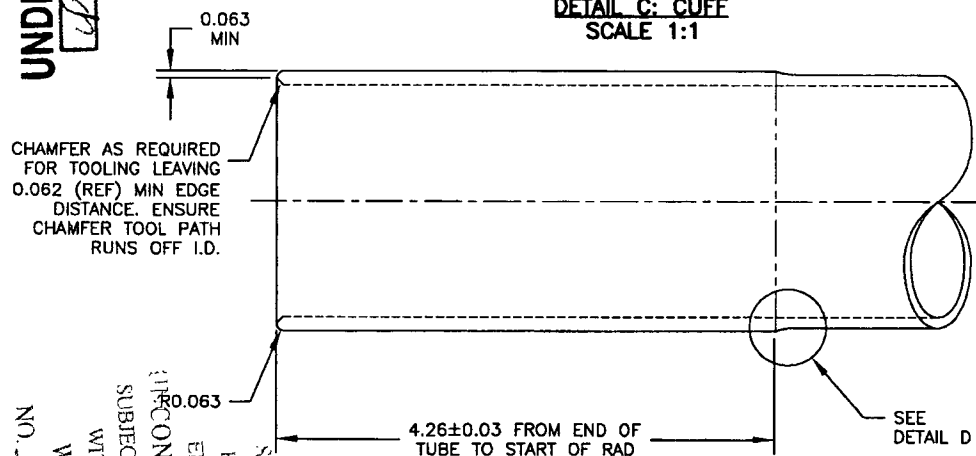


D350-748-241 MACHINING DETAIL

RELEASED

06.08.15

DETAIL C: CUFF
SCALE 1:1



DETAIL D:
CUFF TRANSITION
SCALE 9:1

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DATE 06.08.14		TITLE CROSSTUBE (AS 350/355 HI. AFT)		SCALE 1:4	

UNDER REVIEW

CHAMFER AS REQUIRED FOR TOOLING LEAVING 0.062 (REF) MIN EDGE DISTANCE. ENSURE CHAMFER TOOL PATH RUNS OFF I.D.

NO. 28463A
WORK ORDER
SUBJECT TO AMENDMENT WITHOUT NOTICE
CONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY

DART AEROSPACE LTD		Work Order: 28-63A
Description: 350 X-TUBE		Part Number: Q350-748-211
Inspection Dwg: 350-748-211 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☒ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.240	$\pm .005$ $-.000$	2.243	—			
2.180	"	2.185	—			
2.180	"	2.185	—			
2.208	"	2.213	—			
2.234	"	2.238	—			
2.253	"	2.255	—			
2.272	"	2.277	✓			
2.299	"	2.303	—			
4.26	$\pm .030$	4.26	✓			
.063	$\pm .010$.063	✓			
122.7	$\pm .06$	122.7	✓			
2.240	$\pm .005$ $-.000$	2.244	✓			
2.180	"	2.185	—			
2.180	"	2.185	—			
2.208	"	2.213	—			
2.234	"	2.238	—			
2.253	"	2.256	—			
2.272	"	2.277	✓			
2.299	"	2.304	✓			
4.26	$\pm .03$	4.26	✓			
.063	$\pm .010$.063	✓			

Measured by: JG	Audited by: J.G	Prototype Approval: N/A
Date: 06.09.15	Date: 06/09/19	Date:

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/JLM	



VAC AERO
INTERNATIONAL INC.

RELEASE NOTE

GST No.: R105468102

OAK 79915-1



HEAD OFFICE
1371 SPEERS ROAD, OAKVILLE, ONTARIO
CANADA L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489



2009 WYECROFT ROAD, UNIT B
OAKVILLE, ONTARIO
CANADA L6L 6J4
TEL: (905) 827-7377 FAX: (905) 827-1380



QUEBEC DIVISION
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

10/11/2006

MM/DD/YYYY

PAGE: 1

1DAR01

BILL TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

K6A 1K7

K6A 1K7

DATE SHIPPED	SHIP VIA	F.O.B.
10/11/2006		ORIGIN
CUSTOMER P/O No.	JOB No.	TERMS
PO00002129		COD

PART No.	DESCRIPTION	UOM	QTY ORD	QTY SHPD	TEST RESULTS
D350-CROSS TUBES		EA	10	10	
<p>Process Specifications: Procedure: 4353 HEAT TREATED TO 180-200 KSI PER AMS 2759-1C 100% HARDNESS TESTED PER ASTM E-18 HRC 40-43 MATERIAL: 4130</p> <p>5 PCS. P/N: D350748141 B28459, B28460, B28458, B28466, B28461 5 PCS. P/N: D350748241 B28162, B28464, B28465, B28463, B28471</p> <p>SANDBLASTED AFTER HEAT TREAT</p>					

100% HARDNESS TESTED
10 PCS.
42/43 HRC



I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

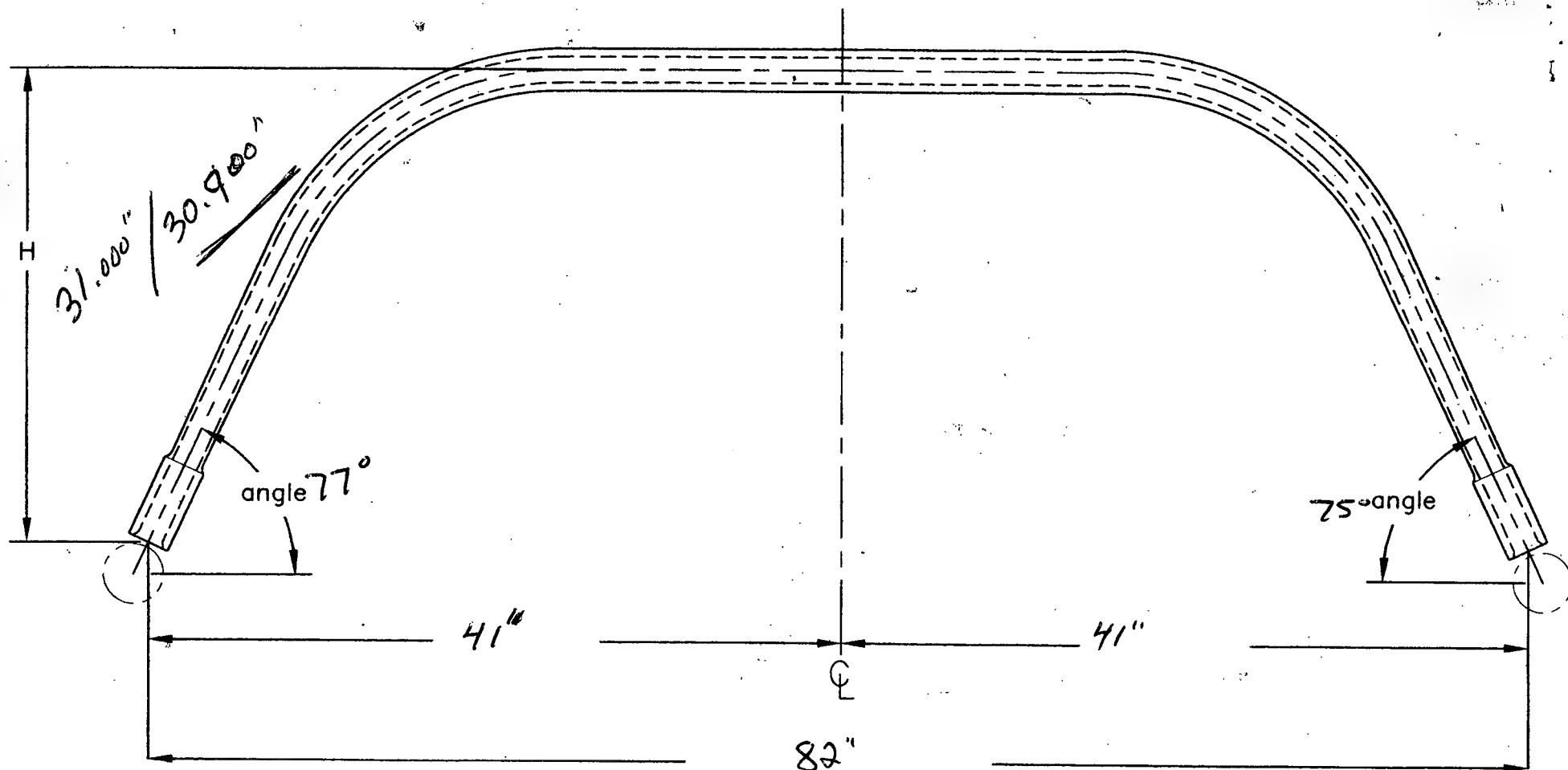
Sandra Freeman
Authorized Q.C. Inspector



HEAT TREATING



VACUUM BRAZING · HEAT TREATING · SPECIAL PROCESSING · FURNACE EQUIPMENT



DATE: 06/11/06

DESCRIPTION: A350 748241

BATCH NO: B28463 A

DRAWING: A350 748241 Rev C under rev

H: 31.35''

1/2 SPAN: 40.90''

TOTAL SPAN: 81.8''

ANGLE: 75^\circ

Feb-11-13



Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.
422 S. St. Louis Tulsa, OK 74120

Page 1 of 1

PACKING LIST

DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship Date: 12/18/2006

QTY		Part Number/Description	
Certification #: 14450		Certification Date: 12/18/2006	
1.00	D350-748-141	Ref-No: B28458A	
	CROSSTUBE	Job-No: 32000	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28460A	
	CROSSTUBE	Job-No: 32014	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28466A	
	CROSSTUBE	Job-No: 32015	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28462A	
	CROSSTUBE	Job-No: 32016	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28463A	
	CROSSTUBE	Job-No: 32017	
		P/O #: 274731	
1.00	D350-748-141	Ref-No: B28465A	
	CROSSTUBE	Job-No: 32018	
		P/O #: 274731	

JOB QTY FOR 14450:

6

SHIPPED QTY FOR 14450:

6

Tracking #: k

Ship Via: OTHERS

COD Amount: \$ 1,980.00

FAA Repair Station CN2R748K

Subject to Southwest United Industries, Inc. Standard Terms and Conditions available for review at www.swunited.com



Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.
422 S. St. Louis Tulsa, OK 74120

Page 1 of 2

CERTIFICATION

DART AEROSPACE LTD
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7
CANADA

Certification #: 14450

Certification Date: 12/18/2006

Qty	Part Number/Description	Job-No/Order-No/Ctl-No
1	D350-748-141 CROSSTUBE	32000 274731 B28458A
1	D350-748-141 CROSSTUBE	32014 274731 B28460A
1	D350-748-141 CROSSTUBE	32015 274731 B28466A
1	D350-748-141 CROSSTUBE	32016 274731 B28462A
1	D350-748-141 CROSSTUBE	32017 274731 B28463A
1	D350-748-141 CROSSTUBE	32018 274731 B28465A

1. Stress relieve at 350-400F for 4 hours minimum

2. Cadmium plate per AMS-QQ-P-416B, Type II, Class 1 (QQ-P-416, Type II, Class 1)

3. Embrittlement relieve within 4 hours of plating at 350-400F for 8 hours minimum

4. Magnetic particle inspect per ASTM E 1444-05. No linear indications/cracks allowed.

Qty Ins: 6 Qty Rej: 0 Qty Acc: 6

5. Inspect

FAA Repair Station CN2R748K

Subject to Southwest United Industries, Inc. Standard Terms and Conditions available for review at www.swunited.com



Southwest United Industries, Inc.

SOUTHWEST UNITED INDUSTRIES, INC.
422 S. St. Louis Tulsa, OK 74120

Page 2 of 2

CERTIFICATION

We certify that the parts listed above have been processed in accordance with the requirements and specifications of the above referenced purchase order. Documentation is on file and available for review.

Certification By: 

WISE, ROBERT



FAA Repair Station CN2R748K

Subject to Southwest United Industries, Inc. Standard Terms and Conditions available for review at www.swunited.com

Date: Friday, 30/03/2007 9:48:57 AM
 User: Linda Lacelle

Process Sheet

Customer : CC-DAR01 Dart Aerospace Ltd.	Drawing Name : D350-748
Job Number : 31554	
Estimate Number : 10804	
P.O. Number : N/A	Part Number : Z_CUSTOM
This Issue : 30/03/2007 S.O. No. : N/A	Drawing Number : UPDATE PAPERWORK
Prsht Rev. : NC	Project Number : N/A
First Issue : N/A Type : OVERHEAD	Drawing Revision : N/A
Previous Run : 00015	Material : N/A
Written By : _____	Due Date : 06/04/2007 Qty: 1 Um: Each
Checked & Approved By : _____	
Comment : _____	

Additional Product

Job Number:



Seq. #: Machine Or Operation:

Description :

1.0

PACKAGING 1

PACKAGING RESOURCE #1



28463



Comment: PACKAGING RESOURCE #1

PULL FROM STOCK:

1 X D350-748-201 B _____

ADD NEW PAPERWORK EASA STC: EASA.IM.R.S.01280

AND RETURN TO STK

~~630525 - D350-607-041 (12)~~
~~628896 - D350-607-041 (12)~~

PER ECN 938

[Signature]
 27/04/05

2.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

[Signature]
 27/04/05

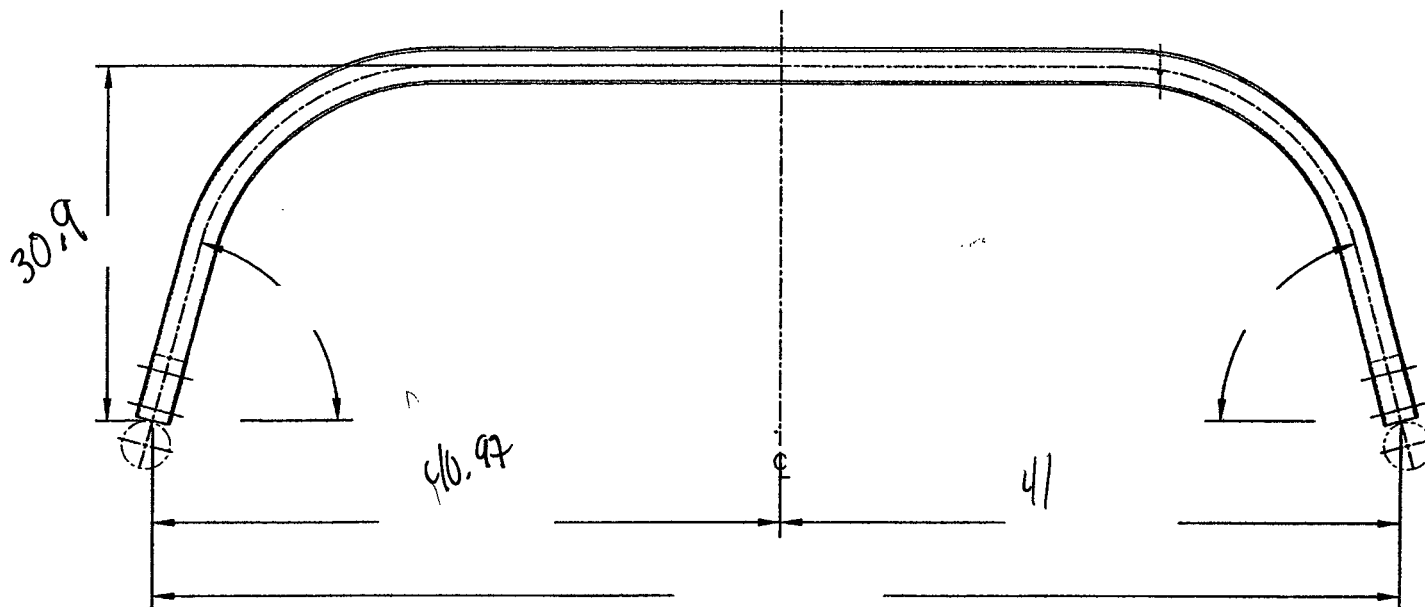
Job Completion



[Signature]
 27/04/05

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: D			Page 1 of 1

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



Comments

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	



DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>///</i>	APPROVED <i>///</i>	DRAWING NO. D350-748-241	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

RELEASED

06-10-31 *///*

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

UNDER REVIEW

07.02/16 *///*

CUT OFF REDUCED
OK 07.07.22

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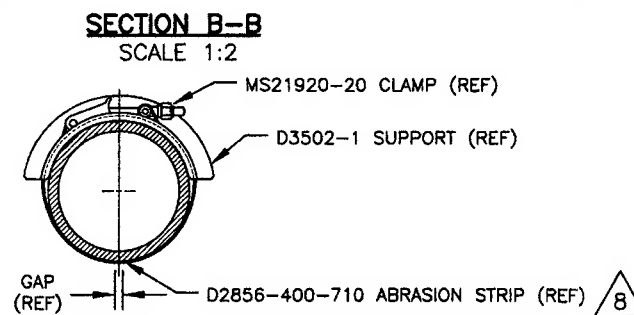
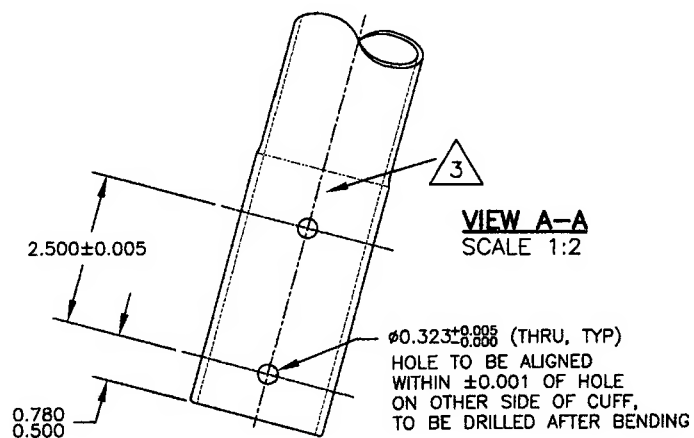
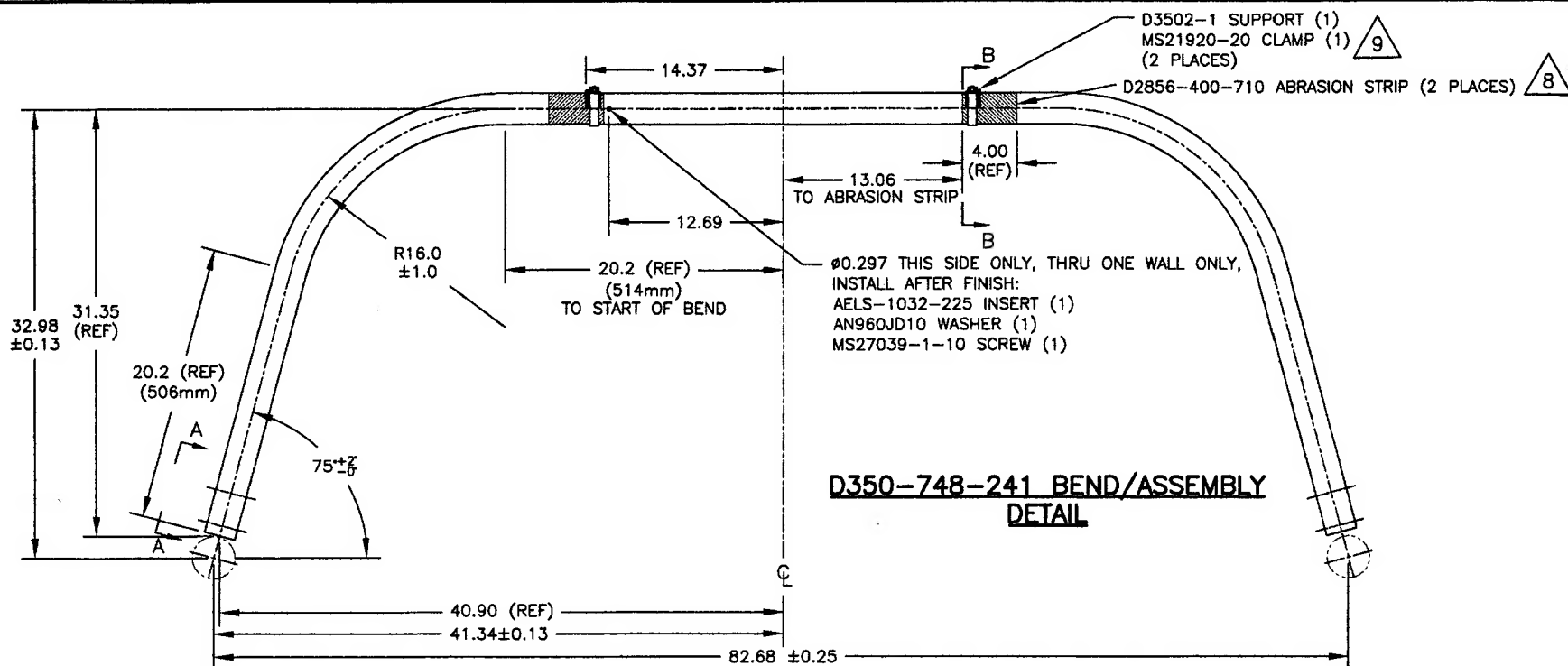
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of

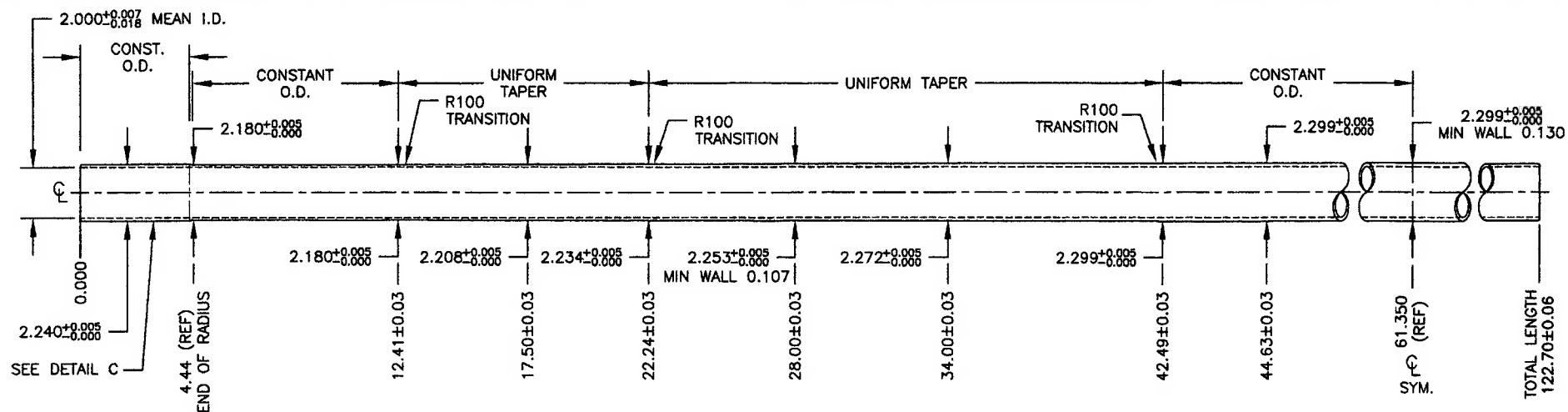
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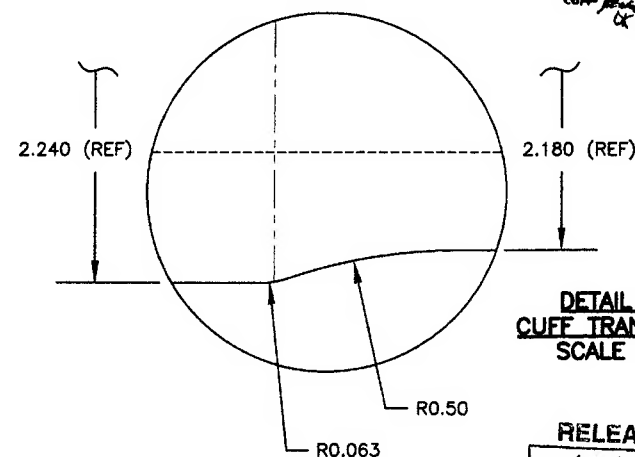
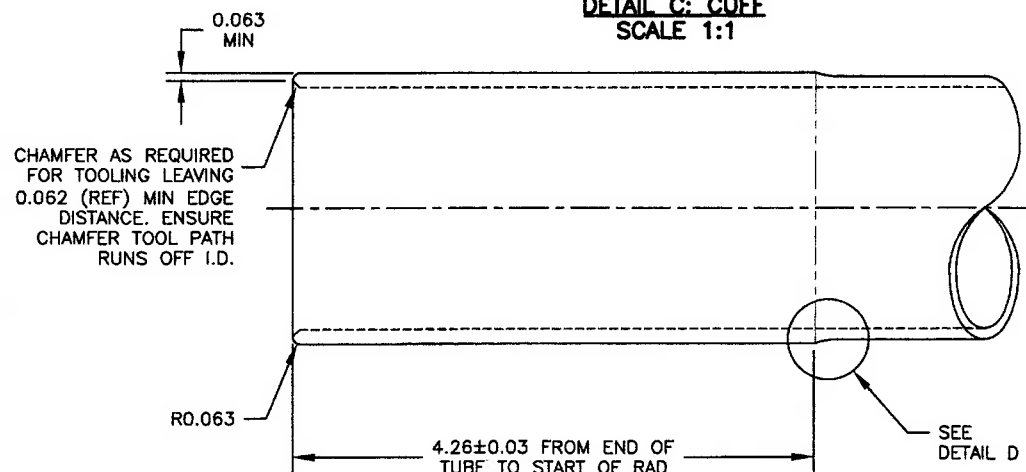
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 06.10.31
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 06.10.31

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		DATE	06.10.31	TITLE		D350-748-241	SHEET 2 OF 3
						CROSSTUBE (AS 350/355 HI AFT)	SCALE 1:8



D350-748-241 MACHINING DETAIL

DETAIL C: CUFF SCALE 1:1



DETAIL D: CUFF TRANSITION SCALE 9:1

RELEASED

06.10.31

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				SCALE	1:4

UNDER REVIEW

07.03/16/17

06.10.31

